

JCARD



JOINT **C**OST **A**NALYSIS **R**ESearch AND **D**ATABASE

Department of the Navy Cost Analysis Symposium

September 17, 2009


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NAVAIR 4.2 Cost Department

OUTLINE

- **BACKGROUND**
- **DESCRIPTION**
- **JCARD PROCESS IN TRANSITION**
 - PAST/ PRESENT/ FUTURE
- **GROWTH OF JCARD SYSTEM**
- **ACHIEVEMENTS**
- **DEMO (SCREEN SHOTS)**
- **SUMMARY**

JCARD Project

- **JCARD effort initiated November 2004 to alleviate challenges faced by DoD Cost Community**
 - **Limited resources**
 - **Services working independently resulting in duplicative efforts**
 - **Lack of good quality data which is vital to daily business operations**
- **NCCA, NAVAIR and AFCAA signed MOU and formed working group with the intent to improve the way we do business within the Cost Community by sharing data, knowledge and resources among Cost Agencies more readily.**

Fundamental problems exist with Cost Data Collection/Analysis within DoD Cost Community

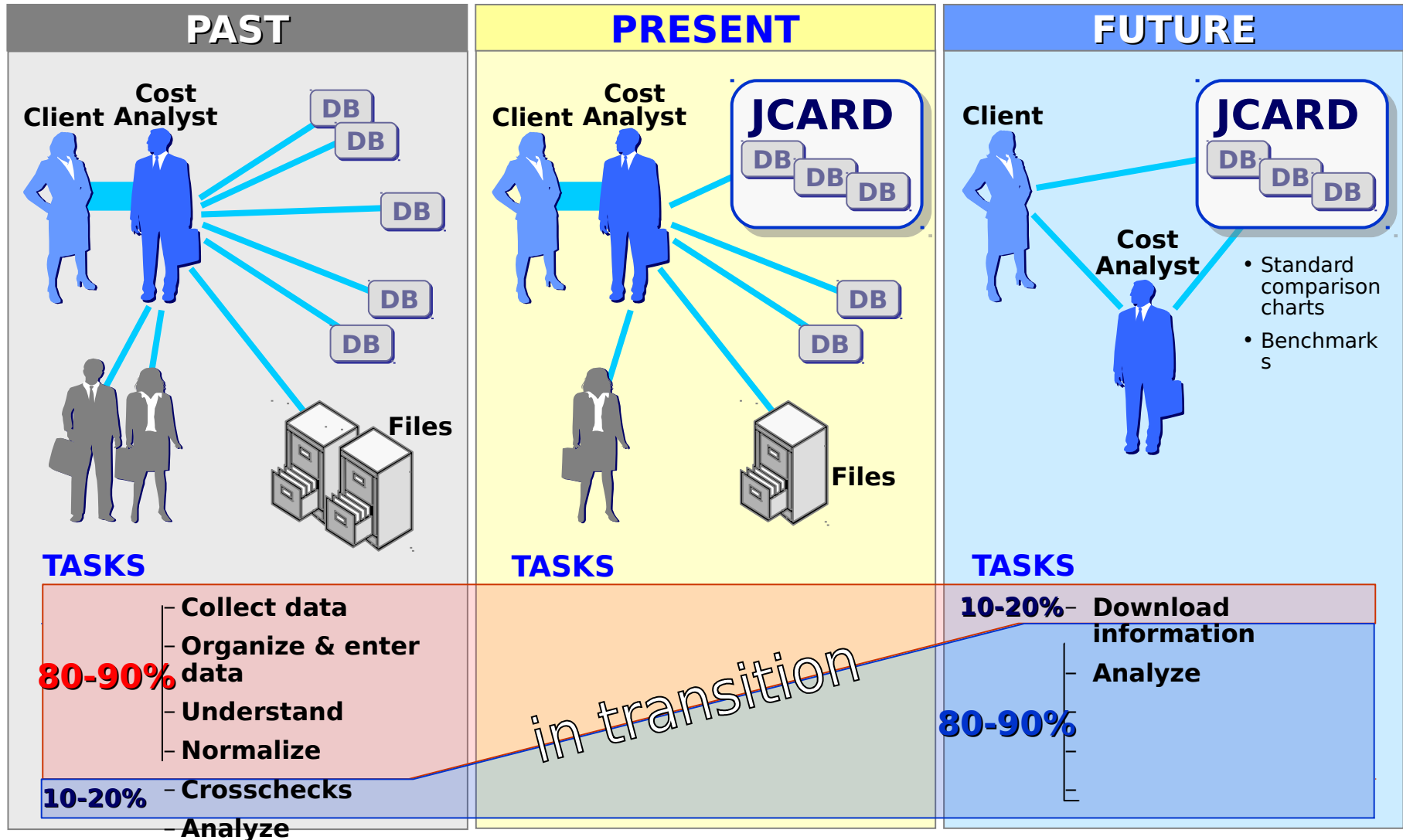
- **Cost Teams and cost analysts work individually**
- **Data resides with cost teams and cost analysts**
- **Information and data is gathered via word of mouth**
- **Cost analysis research is generally contracted out by each service/agency resulting in very little capitalization of research efforts**
- **Stand alone databases developed leading to redundancies in data**
- **Practically no sharing of information and data resulting in high duplication of effort**

JCARD Goal

- **Develop a joint web information system with the objective of being the single information bridge between cost analysts and the DoD authoritative sources for Unclassified/For Official Use Only (U/FOUO) cost, technical and programmatic data.**
- **Bring DoD Cost Community into the 21st century in terms of locating and accessing vital information required for cost/estimating and analysis.**

JCARD PROCESS IN TRANSITION

PAST – PRESENT -- FUTURE



JCARD Description

- **JCARD IS NOT**

- **A Data Repository**
- **Storing calculated values**
- **A Data Dump**
- **A downloadable database**
- **A quick turnaround project**

- **JCARD IS**

- **Storing raw data in SQL tables & building a relational database structure**
- **Storing lower level numbers; calculations done by system**
- **Researching, organizing and “validating” cost, technical and programmatic data from an authoritative source AND providing information**
- **Web based tool for DoD Cost Community**
- **Long Term Project**



F/A-18E; F/A-18F

Administrator List

[Export List to Excel](#)

Sort By: As of Date(Descending) ▼



85 Documents


	Title	Task	As of Date
<input type="checkbox"/>    	(A) 1921 (12/29/2003), F/A-18 - N00019-04-C-0014 (Boeing Company)	MY II Initial	12/29/2003
<input type="checkbox"/>    	(A) 1921 (6/30/2004), F/A-18 - N00019-99-C-1226 (Boeing Company)	Air Vehicle Lot 3	6/30/2004
<input type="checkbox"/>    	(A) 1921 (7/31/2002), F/A-18 - N00019-99-C-1226 (Boeing Company)	Air Vehicle Production	7/31/2002
<input type="checkbox"/>    	(A) 1921-1 (12/29/2003), F/A-18 MY II Initial - N00019-04-C-0014 (Boeing Company)	MY II Initial	12/29/2003
<input type="checkbox"/>    	(H) 1921 (12/25/1998), F/A-18 - (Northrop Grumman Corporation)	Lot 1 (Airframe & Subsystems)	12/25/1998
<input type="checkbox"/>    	(H) 1921 (12/31/1992), F/A-18 - N00019-92-C-0059 (McDonnell Douglas Corporation)	Air Frame FMS Lot 3	12/31/1992
<input type="checkbox"/>    	(H) 1921 (12/31/1993), F/A-18 - N00019-92-C-0059 (Northrop Corporation)	Development	12/31/1993
<input type="checkbox"/>    	(H) 1921 (12/31/1993), F/A-18 - N00019-92-C-0059 (Northrop Corporation)	Air Frame FMS Lot 3	12/31/1993
<input type="checkbox"/>    	(H) 1921 (5/2/1997), F/A-18 - N00019-96-C-0065 (Northrop Grumman Corporation)	Lot 1 (Airframe & Subsystems)	5/2/1997

Manufacturing Direct Labor Hours

CONTRACTOR:

Prime (Boeing)

COST TYPE:

Recurring Production ▼

TO DATE

Lot Average Cost (Unit Cost)

****Hours are in hours, Dollars are in dollars****

Submit

PLATFORM: F/A-18 E/F

COST TYPE: TO DATE REC Production Unit Cost

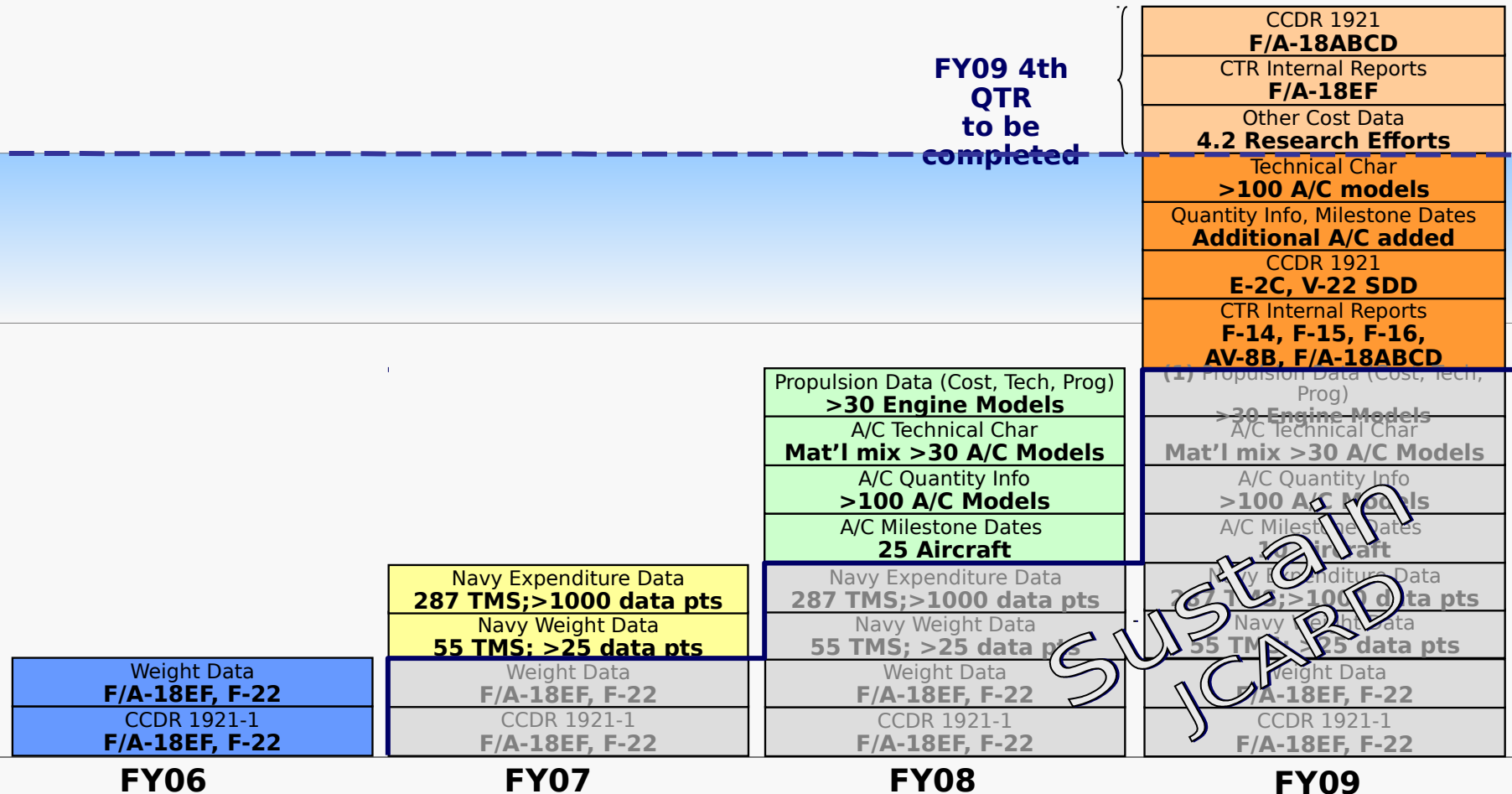
[Consolidated Comments](#) [Platform Comments](#)

[illegible]

JCARD Key Features

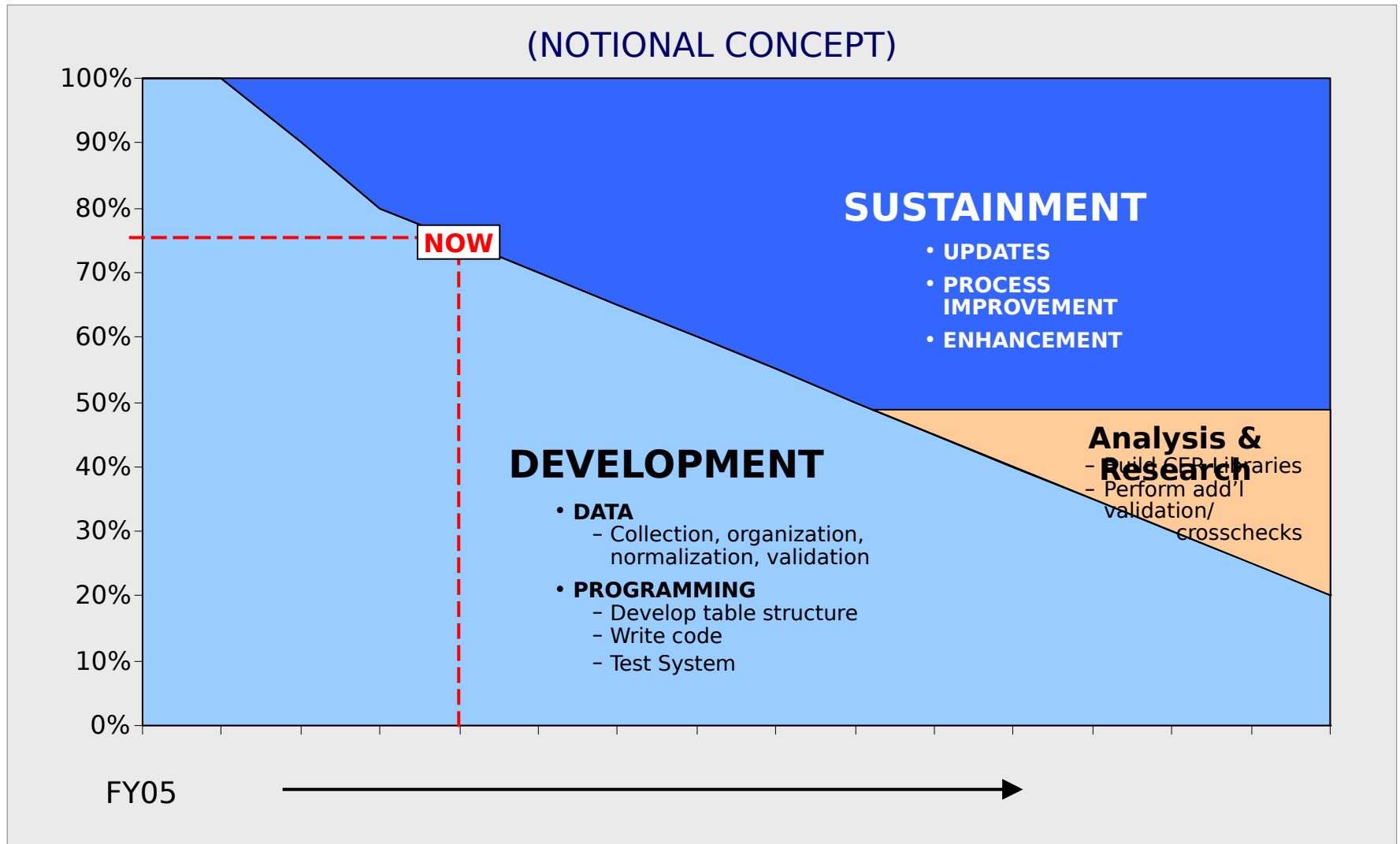
- **Provide cost, technical and programmatic data in one easily accessible location for**
 - **Aircraft systems (rotary & fixed wing)**
 - **Propulsion systems**
 - **Avionics systems**
 - **Missile systems**
- **Data Validation**
 - **Consolidating various fragmented and dispersed data sets; cross checking against authoritative sources and removing redundancies**
 - **User will validate data from authoritative sources**
- **Documentation**
 - **Complex comment system**
 - **Denote issues with data, platform, sources, etc.**
 - **Provide information**

GROWTH OF JCARD SYSTEM



JCARD

DEVELOPMENT/SUSTAINMENT



JCARD ACHIEVEMENTS


- **MAKING DATA ACCESSIBLE, ELIMINATING DUPLICATION OF EFFORT, CAPITALIZING ON RESEARCH EFFORTS, INCREASING SHARING OF DATA AND INFORMATION**
 - WEIGHT DATA (AIR FORCE & NAVY)
 - MACDAR
 - 4.2 RESEARCH EFFORTS
 - ACDB
 - NAVY EXPENDITURE DATA
- **IMPROVING QUALITY OF DATA**
 - CCDRS
- **IMPROVING PROCESSES FOR OBTAINING DATA**

DEMO

(SCREENSHOTS)



Joint Cost Analysis Research & Database Working Group

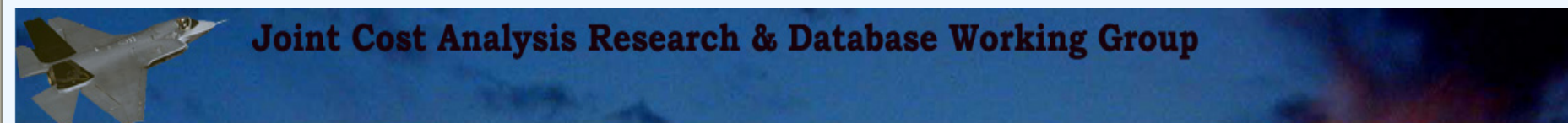
[About JCARD](#)[Contact Us](#)[Privacy/Security Disclaimer](#)

Welcome to the Joint Cost Analysis Research and Database (JCARD) Web Information System (WIS). The objective of the JCARD WIS is to improve the efficiency, credibility, and capability of cost analysis within the DoD community through the use of shared resources, data, knowledge and expertise. This will be a vehicle by which Unclassified/For Official Use Only (U/FOUO) cost, technical and programmatic information will be disseminated among the Department of Defense (DoD) Cost Agencies to conduct official business. The JCARD WIS is established and maintained as an official service by the JCARD Working Group. To receive additional background information on JCARD and to learn more about the JCARD sponsors and working group members please click on the link above titled, "About JCARD".

Access to this Web Site is restricted to Government Employees.

PLEASE LOGIN

Username: Password: [Request an Account](#)[Forgot Password](#)



Joint Cost Analysis Research & Database Working Group

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[Aircraft Systems](#)[Propulsion](#)[Naval Aviation Plan](#)

Welcome to Version 4.0 of the Joint Cost Analysis Research and Database (JCARD) Web Information System (WIS). The WIS currently includes an Aircraft Systems Data Module and a Propulsion Data Module. Both data modules contain cost, technical and programmatic information.

The Propulsion Database contains cost, technical and programmatic information for over 30 different engine models, including aircraft and missile engines.

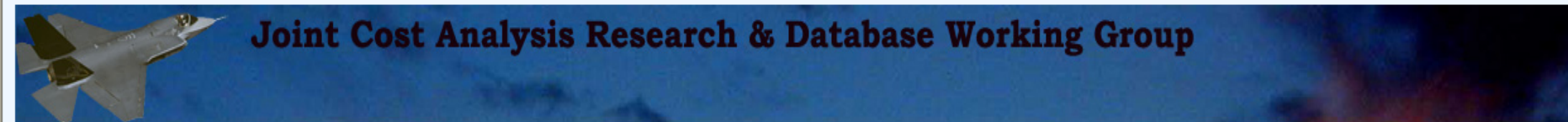
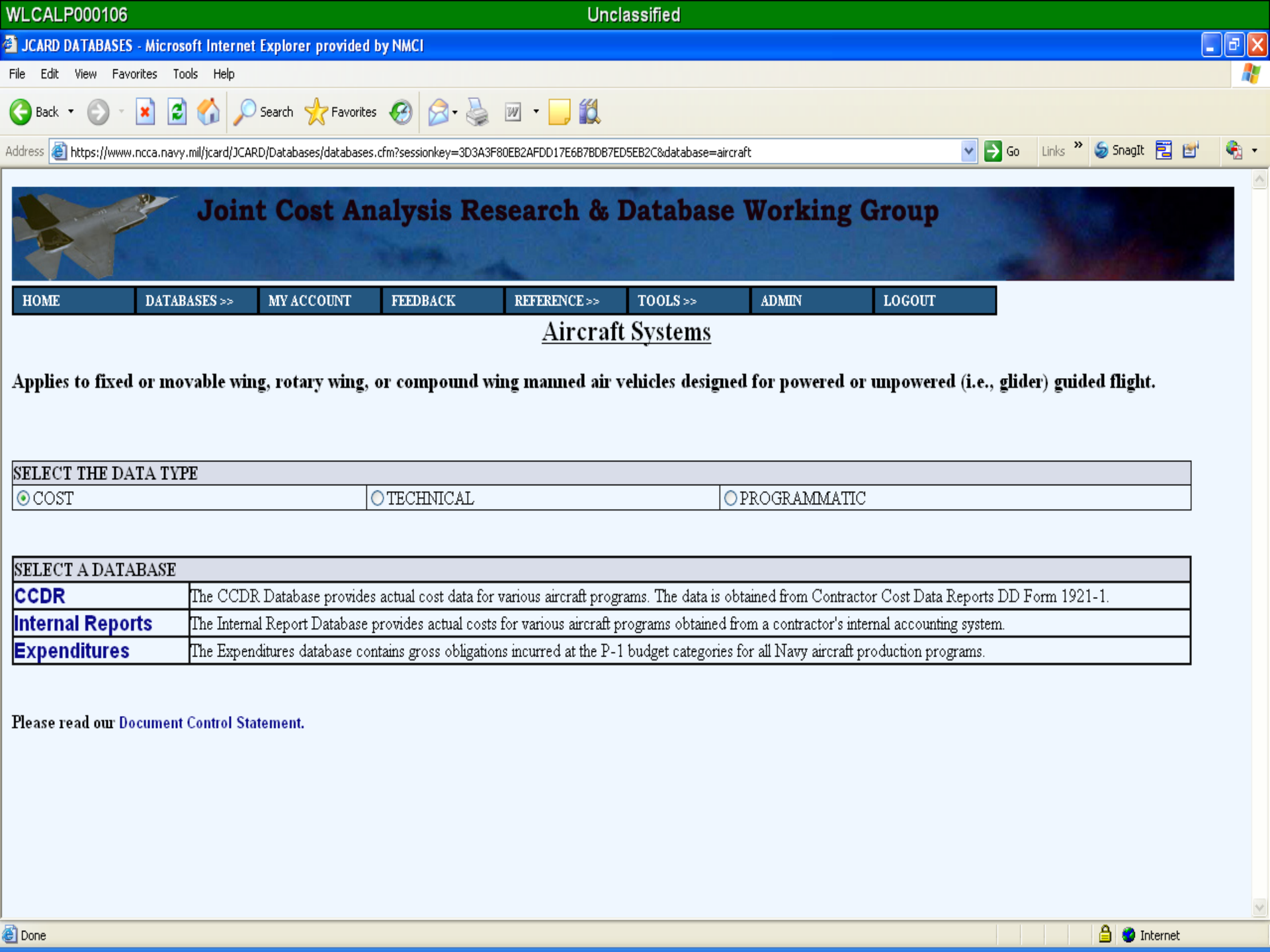
The Aircraft Systems data module contains the following:

1. Cost Data
 - o Contractor Cost Data Reports (CCDRs) for five aircraft programs (F/A-18 EF, F-22A, C-2A, E-2C and V-22)
 - o Expenditure data for 287 aircraft platforms (over 1000 data points)
 - o Contractor Internal Reports for five aircraft programs (F/A-18 ABCD, F-14, F-15, F-16 and AV-8B)
2. Technical Data
 - o Aircraft weight data for 55 aircraft platforms (over 300 data points)
 - o Aircraft material mix data for 27 aircraft platforms
3. Programmatic Data
 - o Quantity information for over 100 different aircraft series
 - o Milestone dates for approximately 10 aircraft platforms

Note: since this is a dynamic system new data will be added to the WIS as it becomes available.

To access the various data modules click on "Databases" at the top of the screen





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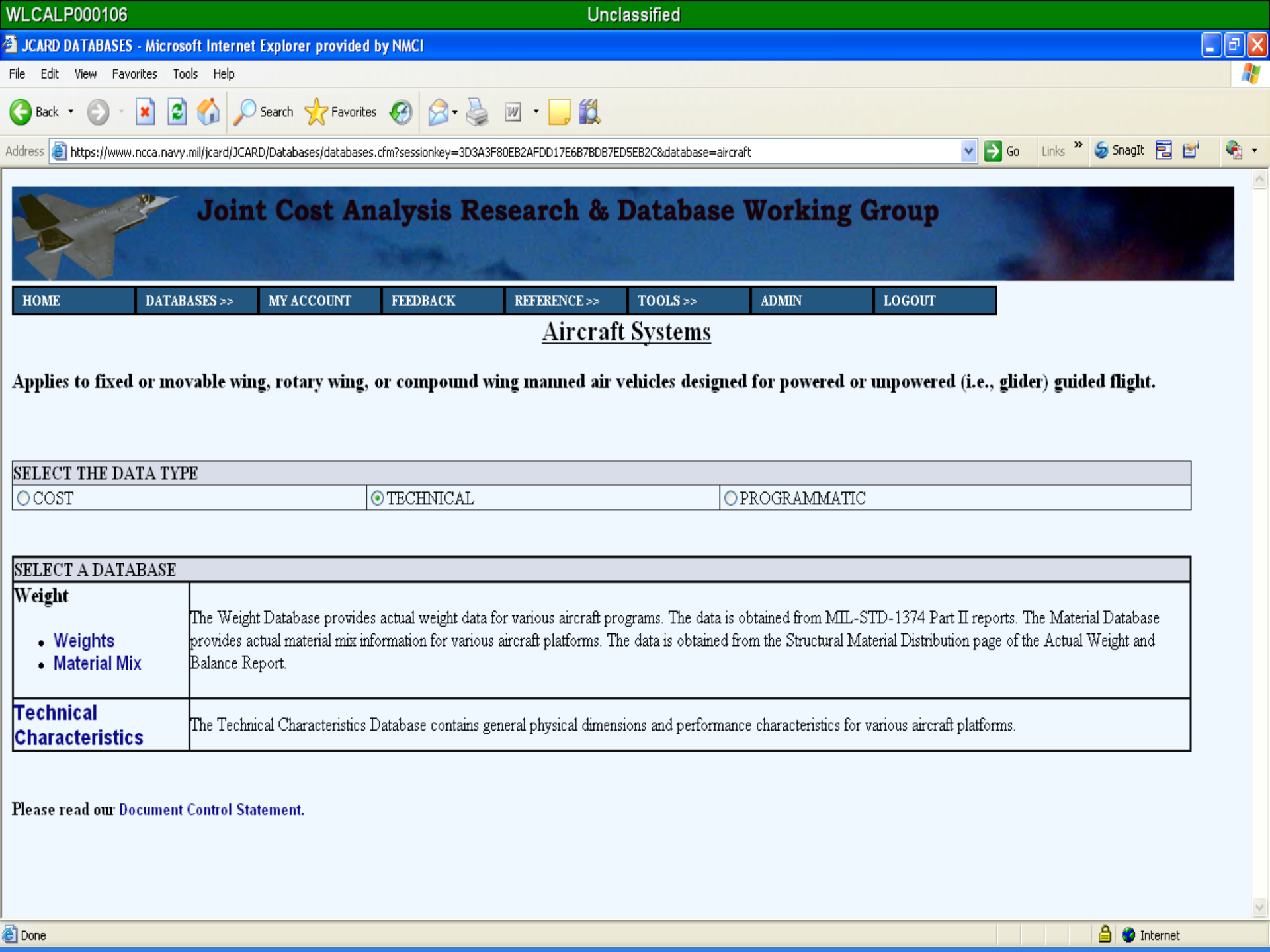
Aircraft Systems

Applies to fixed or movable wing, rotary wing, or compound wing manned air vehicles designed for powered or unpowered (i.e., glider) guided flight.

SELECT THE DATA TYPE		
<input checked="" type="radio"/> COST	<input type="radio"/> TECHNICAL	<input type="radio"/> PROGRAMMATIC

SELECT A DATABASE	
CCDR	The CCDR Database provides actual cost data for various aircraft programs. The data is obtained from Contractor Cost Data Reports DD Form 1921-1.
Internal Reports	The Internal Report Database provides actual costs for various aircraft programs obtained from a contractor's internal accounting system.
Expenditures	The Expenditures database contains gross obligations incurred at the P-1 budget categories for all Navy aircraft production programs.

Please read our [Document Control Statement](#).



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Aircraft Systems

Applies to fixed or movable wing, rotary wing, or compound wing manned air vehicles designed for powered or unpowered (i.e., glider) guided flight.

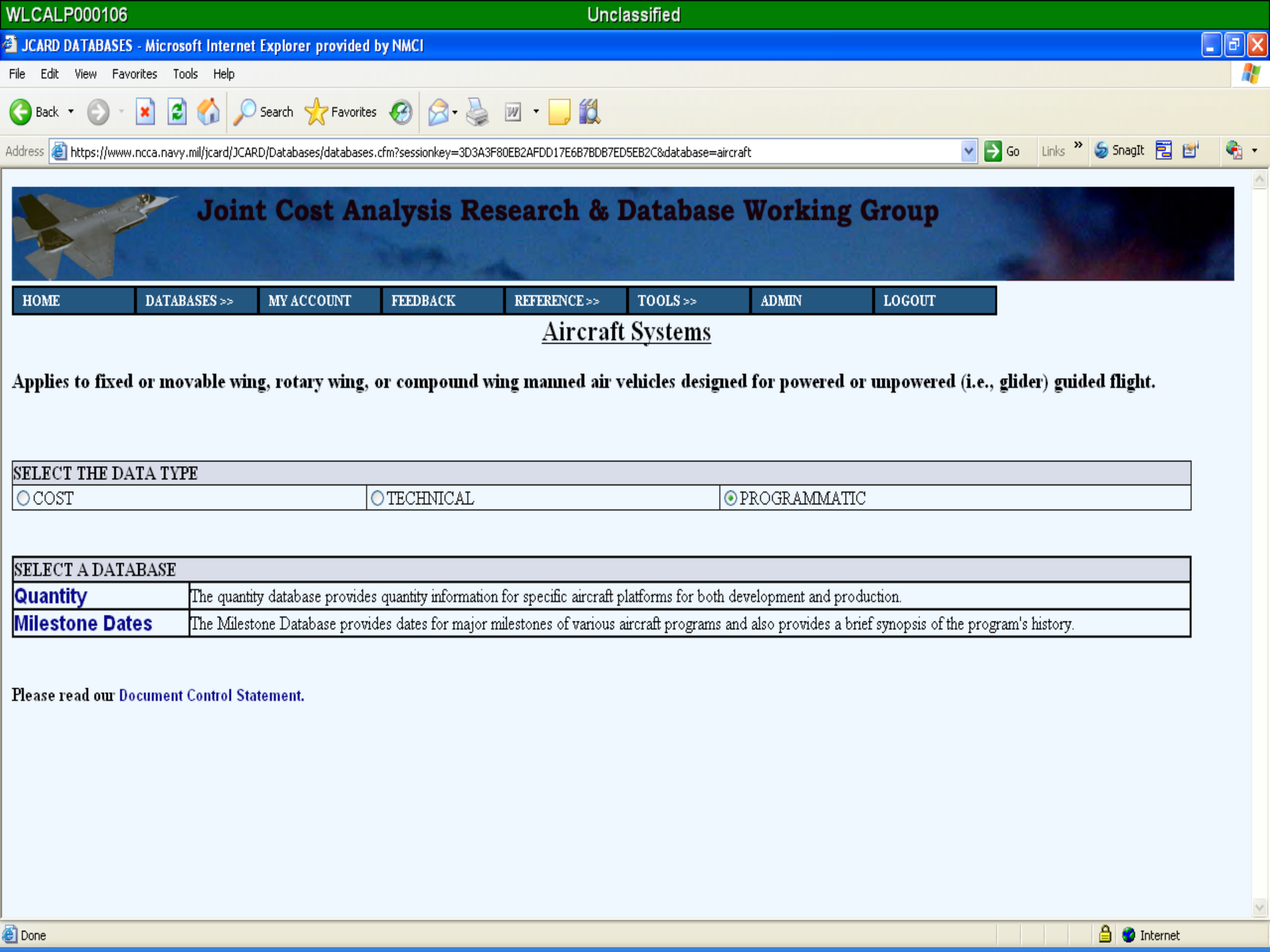
SELECT THE DATA TYPE

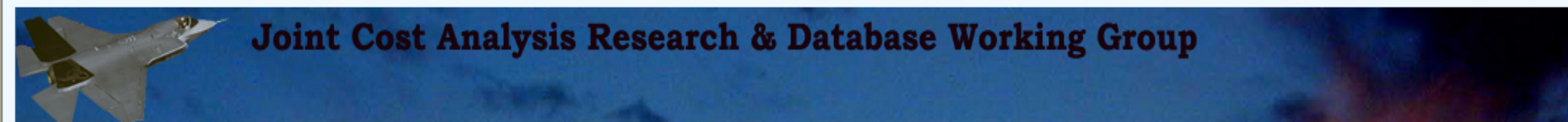
☐ COST ☒ TECHNICAL ☐ PROGRAMMATIC

SELECT A DATABASE

Weight <ul style="list-style-type: none">WeightsMaterial Mix	The Weight Database provides actual weight data for various aircraft programs. The data is obtained from MIL-STD-1374 Part II reports. The Material Database provides actual material mix information for various aircraft platforms. The data is obtained from the Structural Material Distribution page of the Actual Weight and Balance Report.
Technical Characteristics	The Technical Characteristics Database contains general physical dimensions and performance characteristics for various aircraft platforms.

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[Access WEIGHT Database](#)

WEIGHT Database

This portion of the JCARD Aircraft Systems Database allows the user to quickly access actual weight data for various aircraft platforms and export it to Excel for data analysis. Where available, the JCARD team has entered actual weight data from Detailed or Group Weight Statements obtained from NAVAIR 4.9.3, the Mass Properties Group. These reports are prepared in accordance with MIL-STD-1374A and the Society of Allied Weights Engineers Recommended Practice No. 8A. JCARD calculates the various aircraft weight parameters contained in this database by following these guidelines, except as noted in the case of a few older platforms whose reporting structure followed earlier conventions.

First time users of the WEIGHT Database should review the attached document for an overview of weight measures found in the database, including Structure Weight, Aircraft Unit Weight (AUW) and Weight Empty. Weight Empty consists of Structure Weight plus Systems and Installations. Aircraft Unit Weight is used in cost estimating to capture Weight Empty less those items which were historically obtained by the Prime Contractor from Subcontractors. [AUW Diagram.xls](#)

Specific instructions are provided to all contractors by the Government for calculating Weight Empty (WE), Structure Weight (WS) and Airframe Unit Weight (AUW). However, not all contractors adhere to these instructions exactly. Furthermore, Government and Industry standards have changed over time. The system is generally able to calculate WE and WS to match the Government standards, and where possible AUW has been calculated by the system based on research done by the JCARD Team. However, if sufficient detail was not provided to calculate AUW, then AUW weight was taken directly from the source document and entered at the Total level only.

Platform Lot numbers and Fiscal Years were not contained in all of the actual weight reports so the data for some aircraft, as noted, is based on research conducted by the JCARD team. Sources included Selected Acquisition Reports (SARs), Jane's All the World's Aircraft, and two Cost Department databases: the Historic Aircraft Procurement Cost Archive (HAPCA) and the Helicopter Database. Where no other information was available for a few older aircraft, the JCARD data team made a best guess of the fiscal years and lots based on the aircraft number and the production profile for a particular aircraft.

When actual weight reports were unavailable, JCARD used a NAVAIR 4.2 Cost Department Weights Database, developed circa 1997. The NAVAIR Weights database provides a snapshot of the



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1. SELECT A PLATFORM

Aircraft Systems Weight Database

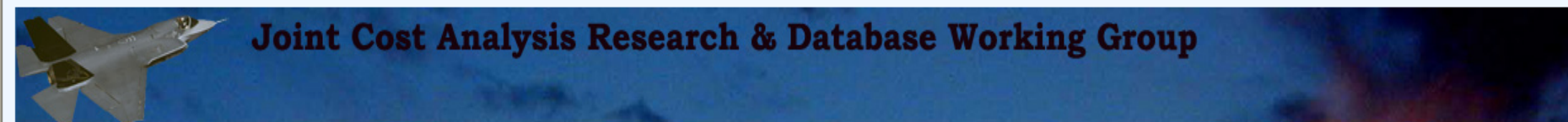
No Platform SelectedATTACK ☐ CARGO ☐ FIGHTER ☐ HELICOPTER ☐ OBSERVATION ☐ PATROL ☐ SPEC ELEC ☐ TILT ROTOR ☐ TRAINER ☐

2. HOW WOULD YOU LIKE TO VIEW THE WEIGHT DATA

View 1 - Weight Data By Type For All Lots (FY)

3. SELECT A WEIGHT TYPE

Weight Empty

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1. SELECT A PLATFORM

Aircraft Systems Weight Database

No Platform SelectedATTACK ☐ CARGO ☐ **FIGHTER ☒** HELICOPTER ☐ OBSERVATION ☐ PATROL ☐ SPEC ELEC ☐ TILT ROTOR ☐ TRAINER ☐


2. HOW WOULD YOU LIKE TO VIEW THE WEIGHT DATA

VIEW THE WEIGHT DATA

View 1 - Weight Data

Lots (FY) 

3. SELECT A WEIGHT

Weight Empty F-14 F-15 F-16 F-22 F-4 F-5 F/A-18 X-31 

F/A-18 A

F/A-18 B

F/A-18 C

F/A-18 D

F/A-18 E

F/A-18 F



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1. SELECT A PLATFORM

Aircraft Systems Weight Database

No Platform SelectedATTACK ☐ CARGO ☐ FIGHTER ☐ HELICOPTER ☐ OBSERVATION ☐ PATROL ☐ SPEC ELEC ☐ TILT ROTOR ☐ TRAINER ☐


2. HOW WOULD YOU LIKE TO VIEW THE WEIGHT DATA

View 1 - Weight Data By Type For All Lots (FY) 

View 1 - Weight Data By Type For All Lots (FY)

View 2 - Weight Data For One Lot (FY)

View 3 - Weight Summary Report

Weight Empty 



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BACK

WEIGHT TYPE:

Weight Empty

Submit

PLATFORM: F/A-18 E WEIGHT TYPE: WEIGHT EMPTY

Consolidated Comments Platform Comments

	Export To Excel	FY	FY97	FY98	FY99	FY00	FY01	FY02	FY04	FY06	FY07
	Lot	SDD	LRIP 1	LRIP 2	LRIP 3	FRP 1	FRP 2	FRP 3	FRP 5	FRP 7	FRP 8
	Aircraft Number	1	6	14	22	37	51	65	113	136	161
	Source Document	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement
	Source Report As Of Date	11/03/95	11/19/98	10/25/99	09/28/00	10/26/01	08/15/02	07/19/03	11/21/05	10/12/07	07/23/08
Collapse/Expand All Show/Hide Mapped Line Items JCARD Standard WBS Dictionary											
1	Aircraft System	5,584,401.00	1,584,444.00	1,266,750.00	6,619,352.00	3,117,532.00	8,468,182.00	6,143,579.00	8,308,539.00	5,995,095.00	7,267,233.00
1.1	Air Vehicle	8,217,924.00	8,428,706.00	7,058,644.00	9,958,339.00	1,558,531.00	8,921,692.00	2,531,044.00	8,187,657.00	7,470,366.00	7,014,926.00
1.1.1	Airframe, Subsystems & IATC	566,088.00	7,119,982.00	3,546,599.00	6,722,645.00	6,931,279.00	3,140,544.00	4,904,781.00	1,781,323.00	5,266,220.00	4,066,839.00
1.1.1.1	Airframe	5,983,850.00	6,027,657.00	4,363,272.00	1,572,210.00	3,893,350.00	2,179,558.00	7,761,126.00	6,840,635.00	9,816,230.00	192,777.00
1.1.1.1.1	Fuselage	1,552,671.00	2,148,441.00	3,252,747.00	1,961,801.00	4,760,914.00	2,997,341.00	4,974,444.00	9,968,787.00	2,918,889.00	7,740,332.00
1.1.1.1.1.1	Forward Fuselage	8,516,748.00	3,687,260.00	9,519,317.00	4,190,669.00	6,717,616.00	9,021,347.00	1,934,389.00	5,624,190.00	9,384,710.00	2,906,211.00
	Fwd Basic Fuselage	805,207.00	181,423.00	53,037.00	725,584.00	743,458.00	418,065.00	869,013.00	393,385.00	609,175.00	817,420.00
	Fwd Secondary Fuselage	210,168.00	512,673.00	710,104.00	985,716.00	75,110.00	160,390.00	29,330.00	839,385.00	164,698.00	460,294.00
1.1.1.1.1.2	Center Fuselage	2,861,550.00	786,354.00	9,409,732.00	5,970,213.00	9,604,482.00	337,531.00	3,952,069.00	4,932,236.00	5,418,515.00	5,657,933.00
	Aft Ctr Basic Fuselage	876,448.00	934,852.00	541,978.00	284,262.00	846,501.00	390,695.00	762,219.00	934,027.00	166,890.00	752,597.00
	Fwd Ctr Basic Fuselage	122,787.00	461,289.00	583,041.00	769,009.00	893,679.00	889,988.00	411,656.00	970,607.00	553,838.00	896,705.00
1.1.1.1.1.3	Aft Fuselage	143,266.00	5,066,180.00	5,734,155.00	6,368,730.00	5,771,410.00	4,010,032.00	3,880,507.00	1,842,213.00	8,442,319.00	4,049,578.00




BACK

****Weights are in pounds (lbs)****

PLATFORM: F/A-18 E

[Consolidated Comments](#) [Platform Comments](#)

	 Export To Excel	FY	FY97	FY98	FY99	FY00	FY01	FY02	FY04	FY06	FY07
Lot		SDD	LRIP 1	LRIP 2	LRIP 3	FRP 1	FRP 2	FRP 3	FRP 5	FRP 7	FRP 8
Aircraft Number		1	6	14	22	37	51	65	113	136	161
Source Document		Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement	Detailed Weight Statement
Source Report As Of Date		11/03/95	11/19/98	10/25/99	09/28/00	10/26/01	08/15/02	07/19/03	11/21/05	10/12/07	07/23/08
Collapse/Expand All Show/Hide Mapped Line Items JCARD Standard WBS Dictionary											
1	WEIGHT EMPTY	1,215,005.00	4,315,641.00	4,233,359.00	9,520,182.00	375,186.00	1,859,703.00	7,757,178.00	6,943,981.00	2,787,953.00	3,159,456.00
2	AUW	7,617,147.00	8,856,649.00	6,042,746.00	2,495,705.00	5,256,482.00	9,557,112.00	3,351,018.00	7,812,368.00	4,462,995.00	2,355,109.00
3	STRUCTURE WEIGHT	6,757,699.00	4,829,325.00	7,682,861.00	5,670,537.00	5,630,084.00	8,335,178.00	9,051,596.00	3,671,464.00	1,925,657.00	2,766,919.00

SUMMARY

- **JCARD WEB INFORMATION SYSTEM HAS THE POTENTIAL TO BE A VERY POWERFUL TOOL FOR COST ANALYSTS WITHIN THE DOD COST COMMUNITY**
- **SEVERAL MORE YEARS OF DEVELOPMENT REQUIRED FOLLOWED BY YEARLY UPDATES AND MAINTENANCE**